

# FARMING WITH CROP RESIDUES



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1993

January 1993

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Name: \_\_\_\_\_

Address: \_\_\_\_\_

Phone Number: \_\_\_\_\_

In Case Of Emergency Contact: \_\_\_\_\_

Name: \_\_\_\_\_

Phone Number: \_\_\_\_\_

### **Why Keep Crop Residue Records?**

If you're trying to do a better job of erosion control by using crop residue, it's important to know what amounts of residue your tillage system is leaving. This notebook contains information on how to measure or estimate residue percentages after each field operation and is designed as a working tool to help you fine-tune your residue management efforts.

Record keeping is a demanding job, but one that only you can do. Carry this book with you and record every crop management operation and observation. Your records could be important in showing progress towards conservation compliance or water quality goals.

It's important to know the effect each tillage operation has on residue levels, and it is important to note these effects in your record keeping. Soil moisture, the kind of points, the speed and depth of operation, and the amount, kind, and condition of residue are all factors that influence the amount of residue that may be buried or left on the surface. As you do each tillage operation, keep these factors in mind and make adjustments and observe the amount of residue left behind.

**Phone Numbers:**

DOCTOR: \_\_\_\_\_

FIRE DEPT.: \_\_\_\_\_

POISON CONTROL CENTER: \_\_\_\_\_

VETERINARIAN: \_\_\_\_\_

CHEMICAL DEALER: \_\_\_\_\_

BANK: \_\_\_\_\_

ELEVATOR: \_\_\_\_\_

WEATHER REPORT: \_\_\_\_\_

MACHINERY DEALER: \_\_\_\_\_

BROKER: \_\_\_\_\_

COUNTY AGENT: \_\_\_\_\_

SCS OFFICE: \_\_\_\_\_

ASCS OFFICE: \_\_\_\_\_

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### Important Dates

WIFE'S BIRTHDAY: \_\_\_\_\_

HUSBAND'S BIRTHDAY: \_\_\_\_\_

WEDDING ANNIVERSARY: \_\_\_\_\_

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper appears to be a standard notebook page or a sheet of stationery. There is no handwriting or other markings on the page.

## 12 Ways To Leave More Crop Residue

- ☛ Use high residue producing crops
- ☛ Spread residue evenly
- ☛ Skip fall tillage, especially after soybeans
- ☛ Make fewer tillage passes
- ☛ Use cover crops when growing low residue crops, such as soybeans
- ☛ Set secondary tillage tools to work shallower--4" or less
- ☛ Don't use a moldboard plow
- ☛ Drive slower while tilling
- ☛ Use straight points or sweeps on chisel plows
- ☛ Don't till when soil is wet
- ☛ No-till all crops in the rotation
- ☛ Avoid "chopping" residues too finely

## How To Count Plants To Check Plant Population

Row Width (Inches)	40	38	36	30	20	15	7.5
Measured Distance	13.06	13.76	14.52	17.42	26.14	34.85	69.70

Here's an easy way to check plant populations. Once your field is up, count the number of plants in the measured distance in one row for the appropriate row width. Multiply the number of plants times 1,000 to estimate plant population.

Example: 30-inch rows=17.42 feet.

Number of plants counted in

17.42 feet = 150

So, multiply  $150 \times 1,000 = 150,000$

plants per acre.

For an accurate estimate of the plant population, several different rows should be counted and at least four counts should be made per field.

## Row Length To Equal An Acre

Row Width (in.)	Feet	Yards	Rods	Chains	1/100 Acre Feet & Inches
20	26.136	8.712	1.584	396.0	261'5"
28	18.669	6.223	1.132	282.8	186'8"
30	17.424	5.808	1.056	264.0	174'2"
36	14.520	4.840	880	220.0	145'2"
38	13.756	4.585	834	208.4	137'7"
40	13.068	4.356	792	198.0	130'8"

## Guide To Ground Cover

This chart will help you estimate the percent ground cover after your field operations. An estimate of the ground cover remaining with a tillage and planting system can be predicted by multiplying the percentages for each operation shown in the chart.

<u>Tillage operation</u>	<u>Corn-Wheat</u>	<u>Soybean</u>
After harvest	90-95	80-90
Over winter decomposition	80-95	70-80
Moldboard Plow	0-10	0-5
Chisel (3" twisted points)	50-70	30-40
Chisel (straight points)	60-80	40-60
Chisel (sweeps)	70-85	50-60
Paraplow	80-90	75-85
Disk (off-set, deep)	25-50	10-25
Disk (tandem, shallow)	40-70	25-40
Field cultivator (with sweeps)	70-80	50-60
Finishing tool (combination)	50-70	30-50
Anhydrous applicator	75-85	45-70
Planter (conventional, double disk)	85-90	75-85
Planter (no-till, ripple coulters)	75-90	70-85
No-till drill (fluted coulters)	75-85	60-80
No-till plant	40-60	20-40

Here's an example of how to figure how much ground cover is left after each tillage operation.

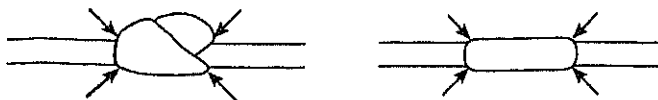
$$\begin{array}{ccccccc}
 (.95) & \times & (.90) & \times & (.60) & \times & (.75) \\
 \% \text{ after} & & \% \text{ after} & & \text{spring chisel} & & \text{spring c} \\
 \text{harvest} & & \text{winter} & & \text{(straight shanks)} & & \text{(shallow)} \\
 & & \times & & & & \\
 & & (.95) & = & (.36) & & \\
 & & \text{planting} & & \% \text{ ground cover} & & \\
 & & & & \text{after planting} & & 
 \end{array}$$



## How To Measure Residue

☛ Use any line that is equally divided into 100 parts. A 50-foot nylon rope with 100 knots or beads spaced six inches apart are commonly used. A 50-foot tape measure using the 6-inch and foot marks also works well.

☛ Stretch the line diagonally across the rows. Select a point on the knot, bead, or mark (as shown below). It is important to look at the same point on each knot or bead for accuracy. Looking straight down, count the number of points that have residue under them. Do not count residue smaller than 1/8 inch in diameter.



☛ Walk the entire length of the rope or tape. The total number of observed points with residue under them is the percent cover. If your rope or tape has only 50 marks, multiply by 2; for 25 marks, multiply by 4.

☛ Repeat the procedure in at least 3 different areas of the field and average the findings.

### Crop Record

Tract number \_\_\_\_\_ Field number \_\_\_\_\_

Acres \_\_\_\_\_ Last year's crop \_\_\_\_\_

Crop planted this year \_\_\_\_\_

Insecticide	Rate/Acre	Acres	Date

Herbicide			

Time			
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Fertilizer analysis			

Manure type	Loads	Acres	Date

Seed Variety	Population		Yield/ Acre	Date
	Planted	Harvested		

## Tillage Record

Percent ground cover after harvest \_\_\_\_\_

Percent ground cover needed after planting next spring \_\_\_\_\_  
(See your Conservation Compliance Plan)

Tillage Operation	Date	Percent Residue

## Scouting Dates

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## Observations

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Notes:

## Crop Record

Tract number \_\_\_\_\_ Field number \_\_\_\_\_

Acres \_\_\_\_\_ Last year's crop \_\_\_\_\_

Crop planted this year \_\_\_\_\_

Insecticide	Rate/Acre	Acres	Date	
Herbicide				
Lime				
Fertilizer analysis				
Manure type	Loads	Acres	Date	
Seed variety	Population		Yield/Acre	Date
	Planted	Harvested		

## **Tillage Record**

Percent ground cover after harvest \_\_\_\_\_

Percent ground cover needed after planting next spring \_\_\_\_\_  
(See your *Conservation Compliance Plan*)

<b>Tillage Operation</b>	<b>Date</b>	<b>Percent Residue</b>

### **Scouting Dates**

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### **Observations**

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**Notes:**

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Crop planted this year \_\_\_\_\_

Insecticide	Rate/Acre	Acres	Date

Herbicide	Rate/Acre	Acres	Date

Lime \_\_\_\_\_

Fertilizer analysis	Rate/Acre	Acres	Date

Fanure type	Loads	Acres	Date

ty	Population		Yield/ Acre	Date
	Planted	Harvested		

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Tillage Operation	Date	Percent Residue

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## Observations

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Notes:

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Crop planted this year \_\_\_\_\_

Insecticide	Rate/Acre	Acres	Date

Herbicide	Rate/Acre	Acres	Date

Lime \_\_\_\_\_

Fertilizer analysis	Rate/Acre	Acres	Date

Manure type	Loads	Acres	Date

Seed Variety	Population		Yield/ Acre	Date
	Planted	Harvested		



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Percent ground cover after harvest \_\_\_\_\_

Percent ground cover needed after planting next spring \_\_\_\_\_  
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Tillage Operation	Date	Percent Residue

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### Observations

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Herbicide				
Lime				
Fertilizer analysis				
Manure type	Loads	Acres	Date	
Seed Variety	Population		Yield/Acre	Date
	Planted	Harvested		

## Tillage Record

Percent ground cover after harvest \_\_\_\_\_

Percent ground cover needed after planting next spring \_\_\_\_\_  
(See your Conservation Compliance Plan)

Tillage Operation	Date	Percent Residue

### Scouting Dates

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### Observations

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Insecticide	Rate/Acre	Acres	Date	
Herbicide				
Lime				
Fertilizer analysis				
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## Tillage Record

Percent ground cover after harvest \_\_\_\_\_

Percent ground cover needed after planting next spring \_\_\_\_\_  
(See your Conservation Compliance Plan)

Tillage Operation	Date	Percent Residue

### Scouting Dates

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### Observations

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Herbicide				
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## Tillage Record

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Percent ground cover needed after planting next spring \_\_\_\_\_  
(See your Conservation Compliance Plan)

Tillage Operation	Date	Percent Residue

## Scouting Dates

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## Observations

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### Crop Record

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Acres \_\_\_\_\_ Last year's crop \_\_\_\_\_

Crop planted this year \_\_\_\_\_

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### Tillage Record

Percent ground cover after harvest \_\_\_\_\_

Percent ground cover needed after planting next spring \_\_\_\_\_  
(See your Conservation Compliance Plan)

Tillage Operation	Date	Percent Residue

### Scouting Dates

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### Observations

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### Crop Record

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Crop planted this year \_\_\_\_\_

## Tillage

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### Tillage 4

Insecticide		Rate/Acre	Acres	Date
Herbicide				
Lime				
Manure type		Loads	Acres	Date
Seed Variety	Population		Yield/Acre	Date
	Planted	Harvested		

## Scouting

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ver needed after planting next spring \_\_\_\_\_  
(*ation Compliance Plan*)

n	Date	Percent Residue

#### Observations


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Crop planted this year \_\_\_\_\_

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Tillage Operation	Date	Percent Residue

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## Observations

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This image shows a full page of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or printed text on the page.

## Rainfall Record

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